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Entry 1 of 1

File: PGPB

Jan 16, 2003

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DOCUMENT-IDENTIFIER: US 20030010288 A1

TITLE: Film formation apparatus and film formation method

Pre-Grant Publication (PGPub) Document Number:

20030010288

Summary of Invention Paragraph:

[0020] First, the substrate having the anode is loaded to a loading chamber. The substrate is transferred to an ultraviolet ray irradiation chamber via a first transferring chamber and ultraviolet irradiation is performed in a vacuum atmosphere to clean the surface of the anode. Note that, when the anode is an oxide such as ITO, oxidation processing is performed in a pretreatment chamber.

Summary of Invention Paragraph:

[0080] Therefore, light sources 211 for irradiating light are provided in the film formation chamber 210 to irradiate the organic compound molecules with light. The organic compounds to which the energy is applied by light irradiation are activated. Note that infrared light, ultraviolet light, or visible light is irradiated from the light sources 211. In view of preventing damage to the organic compound molecules, infrared light is preferable.

Summary of Invention Paragraph:

[0081] The residence time of the organic compound molecules on the surface of the substrate is extended by light irradiation and the organic compound molecules can be easily formed into a film in an optimum position on the substrate. Thus, a denser film can be formed.

Summary of Invention Paragraph:

[0082] FIG. 3A shows a structure of the organic compound film formed by ordinary film formation process and FIG. 3B shows a structure of the organic compound film in the case where the organic compound film is irradiated with light in the molecular activation region 213.

Summary of Invention Paragraph:

[0083] With respect to the respective structures, an anode is formed on a substrate, a first functional region 221, a first mixed region 222, and a second functional region 223 are formed thereon, and finally a cathode is formed thereon. Thus, light emitting elements with such structures are obtained. According to the element shown in FIG. 3B, a distance between the organic compound molecules becomes short and thus a denser film is formed, as compared with the element shown in FIG. 3A. Note that, when gaps are produced between the organic compound molecules in the inner portion of the organic compound film as shown in FIG. 3A, they become defects and movement of carriers is hindered in the defect portions. Thus, the reduction in luminance and the deterioration in an element are caused by the storage of charges. Therefore, it is effective to provide the light sources in the film formation chamber and light irradiation is performed at film formation.

Detail Description Paragraph:

(FILE 'HOME' ENTERED AT 11:14:47 ON 26 SEP 2004)

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L2 116579 IRRADIAT#####
L3 579250 4
L4 116579 IRRADIAT#####
L5 518 L1 (P)L4
L6 0 CAHMBER
L7 44649 CHAMBER
L8 10 L5(P)L7
L9 15 DHIS
L10 90 FIRST (A) ORGAN####
L11 46 SECOND(A) ORGAN#####
L12 0 L5 AND L10 AND L11
L13 0 L10 AND L11 AND L4

FILE 'CA' ENTERED AT 11:27:44 ON 26 SEP 2004
L14 2227 DEPOSITION(A)CHAMBER
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L16 45 L2 AND L14

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L17 9 L16

FILE 'CA' ENTERED AT 11:44:17 ON 26 SEP 2004
L18 32 L1 AND L2

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END OF SEARCH HISTORY